

## Population Prioritization Method

Houston HIV Prevention Community Planning Group (CPG)  
Prioritization Committee

### STEP 1: IDENTIFY AND DEFINE RISK POPULATIONS.

During the CPG orientation on February 21, 2004, the Centers for Disease Control and Prevention (CDC) presented methodology on prioritizing target population for HIV prevention. The suggested prioritization methodology centered on risk behaviors rather than demographic characteristics. The newly formed Prioritization Committee (PC) determined that an update to the current prioritized target populations was needed due to the lack of behavioral information in the current target populations. Comprehensive plans, specifically the prioritization methodology, of several other high morbidity metropolitan areas were reviewed by the PC to determine a method that would be suitable for Houston. The San Francisco methodology was deemed valuable and appeared to be possible to replicate in Houston. It was determined to prioritize populations in Houston primarily on risk behaviors defined by the CDC as primary modes of transmission for HIV, which are listed below in Table 1. Secondly, populations were prioritized on racial/ethnic and gender characteristics.

**Table 1: Risk Populations**

F/IDU	Female injection drug users
FSM	Females who have sex with males
M/IDU	Male injection drug users
MSF	Males who have sex with females
MSM	Males who have sex with males
MSM/IDU	Males who have sex with males and use injection drugs

### STEP 2: DETERMINE RELEVANT FACTORS

Two factors that consisted strictly of hard data were determined to be useful for this prioritization process: 1) the number of new HIV diagnoses in Houston, and 2) the HIV prevalence (number of living HIV/AIDS cases) in Houston. The number of new HIV diagnoses was defined as any new HIV diagnosis, regardless of AIDS status, within a three year time frame from January 1, 2001 to December 31, 2003. The HIV prevalence was defined as all living HIV cases, regardless of AIDS status, as of May 11, 2004. The data source for all HIV data used in this prioritization process was the HIV/AIDS Reporting System (HARS) maintained by the Houston Department of Health and Human Services, Bureau of Epidemiology, HIV/AIDS Surveillance Program.

### STEP 3: DETERMINE POPULATION SIZES – CITY OF HOUSTON

The need to estimate population sizes of all relevant populations in the prioritization process arose in order to calculate rates of new HIV diagnoses. This section outlines the processes and references that were used to estimate the size of each of the risk populations in Houston, which are shown in Table 2. The shaded columns indicate populations that were not risk populations chosen for prioritization; however they were needed to calculate the size of other risk populations.

**Table 2: Estimated Size of Risk Populations**

Gender	Population	Total <sup>1</sup>	FSF <sup>3</sup>	Identify Gay <sup>3</sup>	No Sex in Past Year <sup>3</sup>	FSM	F/IDU <sup>4</sup>
Female	All	978,080	44,992	25,430	133,019	819,631	17,605
	Hispanic	345,286	12,085	3,798	39,363	302,125	6,215
	Black	265,470	7,433	1,593	45,130	218,747	4,778
	White	305,067	14,338	5,186	39,049	260,832	5,491
	13-19 <sup>2</sup>	93,821	3,753	1,220	12,103	80,498	1,689

	20-24	78,691	3,148	1,023	10,151	67,517	1,416
	13-24 <sup>2</sup>	172,512	6,900	2,243	22,254	148,015	3,105
	25+	610,460	24,418	7,936	78,749	523,775	10,988
<b>Gender</b>	<b>Population</b>	<b>Total<sup>1</sup></b>	<b>MSM<sup>3</sup></b>	<b>Identify Gay<sup>3</sup></b>	<b>No Sex in Past Year<sup>3</sup></b>	<b>MSF</b>	<b>M/IDU<sup>4</sup></b>
Male	All	975,551	154,137	89,751	95,604	790,196	17,560
	Hispanic	385,579	28,918	14,266	32,774	338,538	6,940
	Black	229,026	18,322	3,435	19,009	206,581	4,122
	White	296,784	28,491	8,904	28,788	259,092	5,342
	13-19 <sup>2</sup>	100,817	9,275	2,520	10,183	88,114	1,815
	20-24	83,063	7,642	2,077	8,389	72,597	1,495
	13-24 <sup>2</sup>	183,880	16,917	4,597	18,572	160,711	3,310
	25+	587,529	54,053	14,688	59,340	513,500	10,576

<sup>1</sup>US Census 2000.

<sup>2</sup>Interpolated using age group 10-14 from the US Census 2000.

<sup>3</sup>Estimated using methodology from "The Social Organization of Sexuality," Laumann, Edward O.; 1994.

<sup>4</sup>Estimated using methodology from "The Estimated Prevalence and Incidence of HIV in 96 Large US Metropolitan Areas," Holmberg, Scott D., *American Journal of Public Health*; May 1996; pg. 642.

## **Population Estimation Methodology**

### ***Total***

Total population numbers were obtained from the US Census 2000 and represent actual numbers, with the exception of the age groups 13-29 and 13-24. Since age group 13-19 was not specifically defined in the US Census 2000, age groups 13-19 and 13-24 were interpolated from age group 10-14. A normal distribution among the age group 10-14 was assumed thus 40% of the age group 10-14 was used to represent ages 13 and 14.

### ***Men Who Have Sex With Men (MSM)***

MSM population numbers were estimated using percentages from Chapter 8 of "The Social Organization of Sexuality" by Edward O. Laumann. This study provides percentages of six various types of same-gender sexuality: 1) same gender partner since puberty, 2) same gender sex since puberty, 3) same gender attraction, 4) same gender sex appealing, 5) attraction or appeal, and 6) identify as homosexual/bisexual. The percentage used to estimate the MSM population for the purpose of the prioritization process was 2) same gender sex since puberty. Percentages provided by this study are categorized by gender, age, marital status, education, religion, race/ethnicity, and place of residence. Because this study did not collapse the age groups into the same groups that were needed for the prioritization process, an average percentage of 9.2% was applied to all age groups. This average was derived from the following percentages for men who have had same gender sex since puberty: 18-29 (6.4%), 30-39 (10.6%), 40-49 (10.9%), and 50-59 (8.8%). The limitations of this process include the possibility that some age groups will be over-represented or under-represented.

### ***Females Who Have Sex With Males (FSM)***

### ***Males Who Have Sex With Females (MSF)***

The FSM and MSF population numbers were estimated using percentages from both Chapter 8 and Chapter 3 of "The Social Organization of Sexuality" by Edward O. Laumann. Chapter 8 provides percentages of six various types of same-gender sexuality: 1) same gender partner since puberty, 2) same gender sex since puberty, 3) same gender attraction, 4) same gender sex appealing, 5) attraction or appeal, and 6) identify as homosexual/bisexual. The number of individuals who identify as homosexual/bisexual was calculated using the percentages from type 6 of same-gender sexuality (identify as homosexual/bisexual). The number of individuals who have had no sex within the past year was calculated using percentages provided in Chapter 3.

Once these two numbers were calculated, they were then subtracted from the total population to derive the FSM and MSF populations. The limitations of this process include the possibility of bisexual individuals being excluded from the FSM and MSF populations. Because this study did not collapse the age groups into the same that were needed for the prioritization process, an average percentage 10.1% was applied to all male age groups. This average was derived from the following percentages for men who have had no sex within the past year: 18-24 (14.7%), 25-29 (6.7%), 30-34 (9.7%), 35-39 (6.8%), 40-44 (6.7%), 45-49 (12.7%), 50-54 (7.8%), and 55-59 (15.7%). An identical process was used for all female age groups. The limitations of this process include the possibility that some age groups will be over-represented or under-represented.

#### ***Female Injection Drug Users (F/IDU)***

#### ***Male Injection Drug Users (M/IDU)***

The F/IDU and M/IDU population numbers were estimated using information from the article “The Estimated Prevalence and Incidence of HIV in 96 Large US Metropolitan Areas” by Scott D. Holmberg, MD, MPH, which was published in the American Journal of Public Health in May 1996. This article used detailed and rigorous methods to estimate the number of injection drug users in the Houston EMA at 65,200. The EMA population at the time was 3,551,775. The prevalence of IDUs in the Houston EMA was calculated at 1.84% (65,200/3,551,775). This percentage was applied equally across all age and race/ethnicity categories for the purpose of this prioritization process. The limitations of this process include the possibility that some age and race/ethnicity categories will be over-represented or under-represented.

### **STEP 4: PRIORITIZE RISK POPULATIONS BY NUMBER OF NEW HIV DIAGNOSES.**

Risk populations were prioritized primarily on the number of new HIV diagnoses as seen in Table 3. Although rates were calculated at this point, they were not used to primarily prioritize risk populations. The rates will be used to prioritize subpopulations within each risk population as seen in Step 5.

**Table 3: Number of HIV Diagnoses and HIV Rates among Risk Populations**

<b>Risk Population</b>	<b>New HIV Diagnoses 2001 – 2003</b>	<b>Rank (by number of new diagnoses)</b>	<b>Rate (per 100,000 population)</b>
MSM	1,272	1	825.24
FSM	494	2	60.27
MSF	370	3	46.82
M/IDU	161	4	896.93
F/IDU	109	5	605.67
MSM/IDU	80	6	445.68

### **STEP 5: PRIORITIZE SUBPOPULATIONS WITHIN EACH RISK POPULATION.**

Subpopulations, i.e. racial/ethnic and gender characteristics, within each risk population were prioritized if they met one or more of the following criteria:

- The subpopulation has a rate of new HIV diagnoses that is at least 1.5 times greater than that of the risk population as a whole.
- The subpopulation has a HIV seroprevalence of 2% or higher. This is approximately three times the known HIV seroprevalence in Houston, which is .72% (14,087/1,953,631).

Table 4 below illustrates this process. Column 1 (Risk Population) lists the risk population, the number of new HIV diagnoses for this population, the rate of new HIV diagnoses for this population, and the threshold rate for a subpopulation to meet in order to be prioritized, which is 1.5 times the rate of the risk population. The subpopulations that are shaded met one or more of the prioritization criteria. For each subpopulation, the criterion that meets the prioritization threshold is in bold print.

**Table 4: Subpopulation Prioritization Process**

<b>Risk Population</b>	<b>Subpopulation</b>	<b>New HIV Diagnoses 2001-2003</b>	<b>Rate (per 100,000 population)</b>	<b>Living HIV/AIDS Cases (as of 05/11/2004)</b>	<b>Seroprevalence</b>
<b>1) MSM</b> New diagnoses: 1,272 Rate: 825.24 Threshold rate: 1,237.86	<b>Hispanic</b>	330	1,141.14	1,243	<b>4%</b>
	<b>African-American</b>	410	<b>2,237.74</b>	1,752	<b>10%</b>
	<b>Caucasian</b>	505	<b>1,772.47</b>	2,916	<b>10%</b>
	Ages 13-19	39	420.48	125	1%
	<b>Ages 20-24</b>	143	<b>1,871.29</b>	607	<b>8%</b>
	<b>Ages 25+</b>	1,090	<b>2,016.55</b>	5,245	<b>10%</b>
<b>2) FSM</b> New diagnoses: 494 Rate: 60.27 Threshold rate: 90.41	Hispanic	93	30.78	351	0%
	<b>African-American</b>	358	<b>163.66</b>	1,546	0%
	Caucasian	33	12.65	187	0%
	Ages 13-19	46	57.14	268	0%
	<b>Ages 20-24</b>	83	<b>122.93</b>	423	1%
	Ages 25+	365	69.69	1,411	0%
<b>3) MSF</b> New diagnoses: 370 Rate: 46.82 Threshold rate: 70.23	Hispanic	98	28.95	276	0%
	<b>African-American</b>	245	<b>118.60</b>	774	0%
	Caucasian	21	8.11	101	0%
	Ages 13-19	9	10.21	26	0%
	Ages 20-24	34	46.83	108	0%
	Ages 25+	327	63.68	1,030	0%
<b>4) M/IDU</b> New diagnoses: 161 Rate: 916.86 Threshold rate: 1,375.29	<b>Hispanic</b>	28	394.66	121	<b>2%</b>
	<b>African-American</b>	98	<b>2,325.54</b>	640	<b>15%</b>
	<b>Caucasian</b>	34	622.62	152	<b>3%</b>
	Ages 13-19	*	N/A	9	0%
	<b>Ages 20-24</b>	*	N/A	46	<b>3%</b>
	<b>Ages 25+</b>	152	<b>1,406.04</b>	865	<b>8%</b>
<b>5) F/IDU</b> New diagnoses: 109 Rate: 619.13 Threshold rate: 928.70	Hispanic	7	110.18	45	1%
	<b>African-American</b>	74	<b>1,514.95</b>	562	<b>12%</b>
	<b>Caucasian</b>	26	463.19	134	<b>2%</b>
	<b>Ages 13-19</b>	5	289.64	36	<b>2%</b>
	<b>Ages 20-24</b>	11	759.71	104	<b>7%</b>
	<b>Ages 25+</b>	93	827.96	606	<b>5%</b>
<b>6) MSM/IDU</b> New diagnoses: 80 Rate: 455.58 Threshold rate: 683.37	<b>Hispanic</b>	22	310.09	110	<b>2%</b>
	<b>African-American</b>	29	<b>688.17</b>	349	<b>8%</b>
	<b>Caucasian</b>	28	512.74	368	<b>7%</b>
	Ages 13-19	*	N/A	21	1%
	<b>Ages 20-24</b>	*	N/A	103	<b>7%</b>
	<b>Ages 25+</b>	70	647.52	705	<b>7%</b>

**STEP 6: DEVELOP GUIDELINES FOR ALLOCATING RESOURCES**

Funding recommendations were based solely on the number of new HIV diagnoses within each risk population regardless of racial/ethnic and gender characteristics. Allocation tiers were defined at natural numerical breaks among the number of new diagnoses within each risk population. The percent of new diagnoses within each allocation tier was used to determine the recommended funding percentages. It is important to note that 1,192 new HIV diagnoses were excluded from this analysis because they had no reported risk. A racial/ethnic and gender characteristics analysis of these 1,192 risk cases is shown in Table 5.

**Table 5: New HIV Diagnoses with No Reported Risk Excluded From Allocation Analysis**

	Male		Female		Total	
	N	(%)	N	(%)	N	(%)
Hispanic	168	(21.6)	59	(14.2)	227	(19.0)
Black	432	(55.7)	307	(73.8)	739	(62.0)
White	159	(20.5)	39	(9.4)	198	(16.6)
Other	17	(2.2)	11	(2.6)	28	(2.3)
Total	776	(100.0)	416	(100.0)	1192	(100.0)
Row (%)		(65.1)		(34.9)		(100.0)

As seen in Table 6, an 8% range surrounding the percent of new diagnoses was given for the recommended funding range because it would be difficult for the Bureau of HIV/STD Prevention to allocate an exact percentage of funds. It was also recommended that a small percentage of funding be held by the Bureau to address emerging issues throughout the funding cycle. Also of note is that no subpopulation is “ensured” funding. “Prioritized for funding” means that these subpopulations will receive first consideration for allocation of resources.

**Table 6: Recommended Funding Allocations**

Risk Population	Prioritized Subpopulations	Resource Allocation Tier	Recommended Funding Percentage
<b>1) MSM</b> New diagnoses: 1,272	HIV+ Hispanic African-American Caucasian Ages 20-24 Ages 25+	<b>1</b> Percent of New Diagnoses 51.17% (1,272/2,486 <sup>1</sup> )	<b>47-55%</b>
<b>2) FSM</b> New diagnoses: 494	HIV+ African-American Ages 20-24	<b>2</b> Percent of New Diagnoses 34.75% (864/2,486 <sup>1</sup> )	<b>31-39%</b>
<b>3) MSF</b> New diagnoses: 370	HIV+ African-American		
<b>4) M/IDU</b> New diagnoses: 161	HIV+ Hispanic African-American Caucasian Ages 20-24 Ages 25+	<b>3</b> Percent of New Diagnoses 14.08% (350/2,486 <sup>1</sup> )	<b>10-18%</b>
<b>5) F/IDU</b> New diagnoses: 109	HIV+ African-American Caucasian Ages 13-19 Ages 20-24 Ages 25+		
<b>6) MSM/IDU</b> New diagnoses: 80	HIV+ Hispanic African-American Caucasian Ages 20-24 Ages 25+		

<sup>1</sup>1,192 cases with no reported risk were excluded from this analysis. Of the 1,192 cases with no reported risk, 65% were male and 35% were female. There were a total of 3,678 new HIV diagnoses from 2001 to 2003.

## **STEP 7: DEVELOP CONSIDERATIONS FOR RESOURCE ALLOCATION**

### **Consideration 1: Prevention for HIV+ Individuals**

HIV-positive individuals are a high priority in every risk population, in addition to high-risk HIV-negative individuals and those who do not know their serostatus. In order to bring about a reduction in new infections, it is of primary importance that programs reach HIV-positive individuals. For this reason, HIV+ individuals were added as a prioritized subpopulation within each risk population. Interventions for HIV-positive individuals (both those who know their serostatus and those who are unaware that they are positive) should be designed to address their risk behavior as well as meet their specific needs.

### **Consideration 2: Evidence of High-Risk Behavior**

The Prioritization Committee recommends that interventions be targeted to prioritized risk populations and subpopulations in accordance to the definition of persons at very high risk for HIV included in Program Announcement #04064 from the CDC. In summary, persons at very high risk for HIV are defined as someone who, within the past 6 months, has had unprotected sex with a person who is living with HIV; unprotected sex in exchange for money or sex; multiple (greater than 5) or anonymous unprotected sex or needle-sharing partners; or has been diagnosed with a sexually transmitted disease.